

W5YI

America's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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Fred Maia, W5YI, Editor, P.O. Box 565101, Dallas, TX 75356-5101
Electronic mail: fmaia@internetMCI.com Website: <http://www.w5yi.org>
Tel. 817-461-6443 FAX: 817-548-9594

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New Part 15 Spread Spectrum Rules
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Volunteer Protection Legislation Passed by Congress

The Congress finds and declares that the willingness of volunteers to offer their services is deterred by the potential for liability actions against them. As a result, many non-profit and private organizations and governmental entities, including voluntary associations, social service agencies, educational institutions, and other civic programs, have been adversely affected by the withdrawal of volunteers from boards of directors and service in other capacities. The contribution of these programs to their communities is thereby diminished, resulting in fewer and higher cost programs than would be obtainable if volunteers were participating.

Because Federal funds are expended on useful and cost-effective social service programs, many of which are national in scope, depend heavily on volunteer participation, and represent some of the most successful public-private partnerships, protection of volunteerism through clarification and limitation of the personal liability risks assumed by the volunteer in connection with such participation is an appropriate subject for Federal legislation.

It is in the interest of the Federal Government to encourage the continued operation of volunteer service organizations and contributions of volunteers because the Federal Government lacks the capacity to carry out all of the services provided by such organizations and volunteers... [Excerpt from the Volunteer Protection Act of 1997]

After more than ten years of trying, the 105th Congress has finally agreed on the wording of a law to free individual volunteers -- both those who serve the public and organization board members -- from most liability actions (such as a simple accident, oversight or omission) related to their unpaid service to any not-for-profit or governmental organization.

A federal bill called the "Volunteer Protection Act" has been pending for several years which seeks to limit the personal liability of volunteers providing humanitarian assistance to the public. The growing reluctance of private citizens to volunteer for fear of lawsuits triggered interest in this legislation which would shield volunteers from unreasonable and costly lawsuits.

In a recent Gallup survey, one-in-six volunteers reported withholding their services for fear of being sued. About one-in-ten nonprofit groups report the resignation of a volunteer over the threat of liability.

Once the legislation becomes law, you will not be as likely to be sued as a result of any harm unintentionally caused to someone else, if your actions were part of your responsibilities as a volunteer working on behalf of a local, state or federal government agency or a non-profit organization.

There have been dozens of different bills that have attempted to create a protective buffer to release a well-meaning volunteer from the fear of a crushing lawsuit. Several of them have specifically targeted amateur radio activities.

In 1996, for example, Rep. Bill Baker (R-California) introduced a bill (H.R. 3207 *Amateur Radio Volunteer Services Act of 1996*) to protect ham volunteers in the Volunteer Examination program and the Amateur Auxiliary of the FCC from frivolous lawsuits while they were doing their volunteer jobs.

This past March, Rep. Anna Eshoo introduced the *Amateur Radio Volunteer Services Act of 1997* to amend the Communications Act of 1934. Similar

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to H.R. 3207, H.R. 1013 would have protected the personal liability of volunteers assisting the FCC

In the end, however, amateur radio was not even mentioned in either the floor discussion or the wording of the bills. But it applies to certain -- but perhaps not all -- amateur radio public service functions nonetheless. The two bills that were recently passed by Congress are:

S. 544: A bill to provide certain protections to volunteers, nonprofit organizations; and governmental entities in lawsuits based on the activities of volunteers --
Sponsored by Sen. Paul Coverdell (R-Georgia) and;

H. R. 911: A bill to encourage the States to enact legislation to grant immunity from personal civil liability, under certain circumstances, to volunteers working on behalf of nonprofit organizations and governmental entities. -
- Sponsored by Rep. John Porter (R-Illinois.)

The **Volunteer Protection Act of 1997** is very wide in scope and protects just every qualified volunteer who assists the public while receiving little or no compensation. It exempts a volunteer of a non-profit organization or governmental entity if:

- the volunteer was acting within the scope of his or her responsibilities,
- if appropriate or required, the volunteer was properly licensed or otherwise authorized for the activities in the State in which the harm occurred; and;
- the harm was not caused by willful or criminal misconduct, gross negligence, reckless misconduct, or a conscious, flagrant indifference to the rights or safety of the individual harmed.

Since 1986, at least 20 States have passed some form of volunteer-immunity legislation. The *Volunteer Protection Act of 1997* preempts inconsistent State laws except when such law provides additional protection from liability relating to volunteers, nonprofit organizations, or governmental entities. Volunteers must, of course, be licensed to operate a vehicle, vessel or aircraft, maintain insurance and to receive mandatory training if required.

A **nonprofit organization** is defined in the legislation as:

- (A) Any organization described in section 501(c)(3) of the Internal Revenue Code of 1986 and exempt from tax under section 501(a) of such Code; or;
- (B) Any not-for-profit organization organized and conducted for public benefit and operated primarily for charitable, civic, educational, religious, welfare, or health purposes.

A **"volunteer"** is defined as a licensed, certified or authorized individual performing services for a nonprofit organization or a government entity who does not receive:

- (A) Compensation (other than reasonable reimbursement or allowance for expenses actually incurred); or
- (B) any other thing of value in lieu of compensation, in excess of \$500 per year...

While amateur radio was not specifically mentioned as being covered, its public service activities were...

"Nonprofit organizations mobilize volunteers by drawing on their members' special talents to meet social or economic needs. Volunteer organizations are currently deeply involved in such activities as alleviating hunger, educating the public about the dangers of drug and alcohol abuse, providing care of the elderly and infirm, providing athletic programs for our Nation's youth, providing opportunity for the poor, building housing for the homeless, promoting literacy and education, finding missing children, teaching fire safety, **aiding victims in natural disasters**, providing moral education for our youth, and spreading American ideals across the world. In fact, according to a 1990 study by the Hudson Institute, which polled approximately 5,500 associations, volunteer time in America was conservatively estimated to a total \$3.3 billion per year." (From the *Congressional Record*.)

Thus, it is clear that just about any volunteer activity on behalf of a not-for-profit organization is covered. This certainly would include the VEC System and volunteer examiners who conduct exams for the FCC. The House version (which is expected to be the one adopted) would not include VEs driving a vehicle to and from a testing session, however. Also included would be Official Observers, members of the ARRL Auxiliary, and ARES and RACES volunteers.

There is, however, some question as to whether ham volunteers not working under the sponsorship of a qualifying not-for-profit organization -- such as participation at commercial road races, parades and other public service or safety activities -- are covered.

The American Radio Relay League also questioned whether volunteer frequency coordinators would be included under the legislation since they are not participating on behalf of a non-profit entity. While we are not a lawyer, it appears to us that they are indeed covered under the Volunteer Protection Act of 1997 since the Amateur Service frequency coordination functions under the auspices of the National Frequency Coordination Council (NFCC) which was incorporated in the District of Columbia in 1996 as a nonprofit corporation. Furthermore, its activities save the Federal government much time and funding and frequency coordination is recognized in the rules. Perhaps the ARRL wants the frequency coordinating system formally affiliated with the League -- which it is not right now.

The law becomes effective 90 days after the bill is signed by President Clinton which is expected.

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Editors Note: One of our readers sent the following clipping in to us. This copyrighted "opinion editorial" appeared in the Saturday, April 5th edition of *The Philadelphia Inquirer*.

In a pinch, Morse Code can still come in handy It's like a candle when the electricity goes out.

By Stephen A. Arata (*This individual is apparently not a ham.*)

All of the electricity in my house went out not long ago. When we tried to turn on our two flashlights, we discovered that the batteries were dead. We finally went to the emergency drawer in the kitchen and pulled out some candles and matches. By the candles' light, dinner was finished, homework was completed, and stories were told. By that same candlelight, I read a magazine article about the gradual phasing out of the supposedly antiquated system of Morse Code.

I thought, with a great sense of irony, that those who wished to do away with Morse Code probably didn't have any candles in an emergency drawer somewhere.

The U.S. Coast Guard abandoned Morse in 1995. At midnight, this past Jan. 31, France ended its use for maritime communication. And the system faces global maritime extinction by February 1999.

Still, debate continues on the seas and over the airwaves about Morse. Many say it's an outdated vehicle for communication and has no place in today's high-tech world. There are, they add, faster, more powerful and more advanced means available for communication, particularly in the maritime and ham radio world.

On the seas, vessels from nations that have signed the Safety of Life at Sea Treaty carry state-of-the-art equipment that allows shipboard communications officers to send emergency calls automatically. The Global Maritime Distress and Safety System uses a satellite-relayed signal that gives search teams a ship's precise location anytime. Moreover, the Federal Communications Commission now endorses, for the first time in history, a technician-class ham radio license that does not require a Morse Code test.

Is Morse signing off? No! Although many believe it is out of date, Morse is still very necessary, just like a candle in the age of electricity. The code was invented by Samuel F.B. Morse in the 19th century. On May 24, 1844, Morse sent a message using a wire, a battery and two telegraph machines, one in Baltimore and one in Washington. His message, "What hath God wrought?" ushered in the modern era of communication.

In our era, despite what the "experts" say, Morse is still a viable means of communication. It is still widely used, although not so frequently as before. In the maritime industry, where English is the international language, Morse is a simple and concise way to communicate ship-to-ship or ship-to-shore.

We are all familiar with the meaning of "SOS." However, there are many others. For example, "AC" means "abandoning my vessel." Shore stations around the world, using signal lamps, still flash Morse signals to approaching foreign ships to learn their intentions. Navy and merchant vessels, also using lamps, still use Morse signals in convoy while running under radio silence.

Even in Hollywood, the code has its merits. In the recent

thriller, *Executive Decision*, Kurt Russell led a team of Navy SEALs on board an airliner in flight to subdue a group of terrorists. Believing Russell's team had failed, the president sent Navy jets to destroy the airliner. But Russell had only lost voice communication and was able to tap out a Morse message on the plane's tail. Luckily for him, Navy pilots still have to learn Morse. The attack was averted and Russell "survived" to play "Snake" in *Escape From L.A.*

Morse Code facilitates our ability to communicate with one another. It is another option that is efficient and reliable in an emergency when the ability to communicate with words -- whether face to face or across a distance -- fails us. Morse is a great candle that we should continue to keep in our emergency drawer, just in case.

Stephen A. Arata, an Army lieutenant colonel, teaches military science at Hofstra University. (*Thanks WB3BNR*)

AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of June 1997:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0FQ	KI0IQ	(***)	KC0BDH
1 (*)	AA1SG	KE1HX	N1ZIX	KB1CDW
2 (*)	AB2DU	KG2LL	(***)	KC2BVQ
3 (*)	AA3PX	KE3ZV	N3ZLQ	KB3BTZ
4 (*)	AF4DO	KU4HL	(***)	KF4SDW
5 (*)	AC5MU	KM5JK	(***)	KD5AXD
6 (*)	AD6BO	KQ6PK	(***)	KF6LMW
7 (*)	AB7VO	KK7HY	(***)	KC7WWI
8 (*)	AB8AK	KI8CR	(***)	KC8HQI
9 (*)	AA9UM	KG9KR	(***)	KB9QPO
N. Mariana	NH0A	AH0AY	KH0GT	WH0ABH
Guam	(**)	AH2DD	KH2RU	WH2ANT
Hawaii	AH7V	AH6PB	KH7EF	WH6DEA
Amer. Samoa	AH8O	AH8AH	KH8DH	WH8ABF
Alaska	AL0E	AL7QT	KL0IE	WL7CUI
Virgin Is.	(**)	KP2CL	NP2JR	WP2AII
Puerto Rico	NP3G	KP3AY	NP3OB	WP4NND

* = All 1-by-2 & 2-by-1 call signs have been assigned.

** = All 2-by-1 call signs have been assigned.

*** = Group "C" (N-by-3) call signs have now run out in all but the 1st and 3rd call district.

Note: New prefix numerals now being assigned in Puerto Rico (KP3/NP3), Hawaii (AH7/KH7) & Alaska (AL0/KL0)

[Source: FCC Database, Washington, DC]

NEW AND UPGRADING AMATEUR STATISTICS FOR THE MONTH OF MAY 1997

Amateur License Class	New Amateurs 1997	Upgrading Amateurs 1997	Total Amateurs 1997
Novice	97	3	100
Technician	2633	14	2647
Tech Plus	237	457	694
General	31	430	461
Advanced	8	316	324
Extra Class	7	235	242
Club	272	9	281
Total:	3285	1464	4749

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STS-83 SHUTTLE TO BE REFLOWN AS STS-94 MISSED SAREX CONTACTS TO BE MADE UP

Columbia's STS-83 shuttle mission will fly again on July 1st to complete the mission cut short in April because of a fuel cell problem. The remaining Space shuttle flights in 1997 have been adjusted to accommodate Columbia's mission, which will fly as STS-94.

The SAREX (Shuttle Amateur Radio EXperiment) which could not be completed on STS-83 has been carried over to STS-94. Shuttle liftoff from Cape Canaveral is scheduled for 2:37 p.m. EDT (1837 GMT.) The launch window closes at 5:07 p.m. STS-94 will place the shuttle into Earth orbit at an altitude of 160 statute miles with a 28.45° inclination. Landing is scheduled for July 17 at 7:23 a.m. EDT (11:23 GMT.)

Three of the seven STS-83 crew are licensed Amateur Radio operators: Commander Air Force Lt. Col. James Halsell is KC5RNI, Payload Commander Janice Voss KC5BTU, and Mission Specialist Donald Thomas KC5FVF. All are making their fourth Shuttle flight. The primary payload is the first Microgravity Science Laboratory (MSL-1).

The following schools have been selected to make contact with the shuttle. A few students from each school will ask questions which are answered by the ham astronauts over amateur radio frequencies.

Artesia Public Schools,	Artesia, NM
Lexington Traditional Magnet School,	Lexington, KY
Troy Intermediate School,	Troy, TX
Crittenden Middle School,	Mountain View, CA
Edgewater High School,	Orlando, FL
S.J. Davis Middle School,	San Antonio, TX
Mountain View Elementary School,	Dewey, AZ
PS 9 (Public School 9),	New York, NY
Lawrence Intermediate School,	Lawrenceville, NJ
Sonny Carter Elementary School,	Macon, GA
County College of Morris,	Randolph, NJ
Ione Junior High School,	Jackson, CA
Robert J. Burch Elementary School,	Tyrone, GA
Alvin C. York Agricultural Institute,	Jamestown, TN
Beau Chene High School,	Arnaudville, LA
Center Street School,	El Segundo, CA
Lester Middle School,	Okinawa, Japan
Tsinghua University, Beijing,	People's Republic of China

The crew members will also make random contacts with earthbound hams. They make these contacts during their breaks, before and after meal time, and during their presleep time. SAREX configuration C will be flown on STS-94 allowing the shuttle ham astronauts to operate in either the voice or data mode.

FREQUENCIES (FM):

Voice Downlink: (Worldwide) 145.55 MHz
Voice Uplink: 144.91, 144.93, 144.95, 144.97 & 144.99 MHz
Voice Uplink: (Europe only) 144.70, 144.75 & 144.80 MHz
Packet Downlink: 145.55 MHz

Packet Uplink: 144.49 MHz

CALL SIGNS: Voice: KC5RNI, KC5BTK & KC5FVF

Packet call sign: W5RRR-1

W1AW transmits news bulletins (9:45 pm, 12:45 am EDT) on HF bands at 1.855, 3.99, 7.29, 14.29, 18.16, 21.39, 28.59 MHz. The Goddard Amateur Radio Club (Greenbelt, MD) re-transmits live, shuttle air-to-ground audio from their club station, WA3NAN at 3.86, 7.185, 14.295, 21.395, and 28.65 MHz.

Send reports and QSLs to ARRL EAD, STS-94 QSL, 225 Main Street, Newington, CT 06111-1494, USA. Include the following information in your QSL or report: STS-83, date, time in UTC, frequency and mode (FM, voice or packet). In addition, you must also include a SASE using a large, business-sized envelope if you wish to receive a card.

UPCOMING SPACE CALENDAR

The second Mir/Shuttle rendezvous occurred in mid-May with STS-84/Atlantis returning astronaut/physician Jerry Linenger (KC5HBR) to Earth on May 24. He had been on Mir since mid-January. During his Mir mission, Linenger, 42, battled flames, fumes, excruciatingly high temperatures and broken machinery.

He was replaced by Michael Foale (KB5UAC) who will spend the next four months aboard Mir, the Russian Space Station. He has already been heard several times on the two meter ham band.

On the third mission, STS-86/Atlantis (Planned launch September 18, 1997), Michael Foale will be replaced aboard Mir by US astronaut Wendy Lawrence.

Two days earlier (September 16, 1997), an Ariane-space Ariane 5 rocket is scheduled to liftoff from the jungles of South America (Kourou, French Guiana) carrying the much anticipated AMSAT Phase 3-D amateur radio satellite.

The Russian Mir space station has completed about 65,000 trips around the Earth in its eleven years in orbit. Mir's seven year life-span was extended by the need for a home base for the International Space Station.

In November, a Russian "Proton" rocket will launch the "Functional Energy Block" which was built by Boeing and the Russian Space Agency. The FSB is a part of the *International Space Station* (ISS) which plans to have an amateur radio station aboard.

The first mission (ISS-1) in the construction of the *International Space Station* will close out the year. (Planned launch: December 4, 1997.) The prime objective of this mission is the mating of the U.S.-built Node 1 station element to the FGB, and two space walks to connect power and data transmission cables between the Node and the FGB. There are three ISS assembly shuttle flights scheduled in 1998, seven each in 1999 and 2000, six in 2001 and three in 2002. The United States is committed to spend \$17.4 billion on the International Space Station at a \$2.1 billion-a-year clip.

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NEW 1997 VERSION: FORM 610 - APPLICATION FOR AMATEUR OPERATOR/PRIMARY STATION LICENSE

The FCC has issued a new (March 1997) updated version of the **Application Form 610 for Amateur Operator/Station License**. Unlike previous forms, this Form 610 does not carry an expiration date. There are actually very few changes. New Item 3A of the new form does ask for your Internet Address ...if you have one.

In addition, applicants no longer need to answer the (old Item No. 6) question, "Would an FCC grant of your request be an action that may have a significant environmental effect?" Instead, the FCC now includes the following statement above your signature block. "I certify that the construction of this station would NOT be an action which is likely to have a significant environmental effect (see the Commission's Rules 47 C.F.R. Sections 1.1301 - 1.1319 and Section 97.13(a))."

The instruction sheet also refers to new antenna height rules which took effect July 1, 1996. "Amateurs must use FCC Form 854 whenever proposed construction or alteration to existing antenna structures meets FCC notification criteria. Generally, these are antenna structures that are higher than 60.96 meters (200 feet) above ground level or interfere with the flight path of a nearby airport (refer to FCC Rules, Section 97.15). Additionally owners of existing antenna structures, which previously required FAA notification and were cleared by the FCC prior to July 1, 1996, must register before June 30, 1998 in accordance with filing windows prescribed by state. As these structures are registered, owners are required to provide licensees with a copy of FCC Form 854R and are required to display the Registration Number near the base of the antenna structure. The revised FCC Form 854 may be obtained by calling 1-800-418-FORM (3676)."

It is not necessary that you use the new March 1997 version of the FCC Form 610, however. The FCC will also accept the November 1993 and March 1995 version until further notice.

FCC CHAIRMAN ANNOUNCES PLANS TO LEAVE

FCC Chairman Reed Hundt announced on May 27th that he plans to resign so that he could spend more time with his family ...and to finish writing two books. His term of office was not due to expire until June 30, 1998. Hundt was named chairman of the FCC by President Clinton and was sworn in by Vice President Al Gore on November 29, 1993.

In his letter of resignation, Hundt told Clinton that the next few years of the communications revolution would bring new and important tasks for the commission, and that he believed it was time for a new group of commissioners to carry out the FCC's mission. He denied that he was leaving over frustration due to the lack of funding from Congress for the agency.

Hundt said he will be staying at his post as a voting

member of the five-member FCC until the administration completes the process of selecting and installing his successor ...a process that can be lengthy.

Possible replacements include Susan Ness (a current FCC commissioner), William Kennard (the agency's general counsel), Kathy Wallman (a senior White House economic aide and formerly head of the FCC's common carrier bureau) and Ralph Everett (a Washington attorney and former Senate staff member.)

In a speech to the staff, Hundt, 49, said the agency should be proud that it helped the American economy grow at its most sustained pace in history. The FCC chief said the agency had "...completely rewritten the rules for all five lanes of the information highway: telephony, wireless, satellite, cable and broadcasting. ...Our top to bottom overhaul of the \$200 billion telecommunications industry was the first since the Bell System was created more than 100 years ago."

NEW YORK STATE GOVERNOR PROCLAIMS JUNE 1997 AS "AMATEUR RADIO MONTH"

A proclamation from New York Governor George Pataki (formerly K2ZCZ), declaring June as "Amateur Radio Month in the Empire State, was formerly presented to amateurs at the Rochester Hamfest.

State of New York Executive Chamber

The State of New York has more than 38,000 licensed amateur radio operators who have demonstrated their value in public assistance by providing emergency radio communication.

These amateur radio operators promote international goodwill through contacts with foreign stations and cosmonauts on the Mir space station. They provide educational opportunities for young people through the Shuttle Amateur Radio Experiment and Mir Experiment, which brings the voices of space travelers into our classrooms. They donate their services free of charge to federal, state, and local emergency service agencies in the interest of the citizens of the State of New York.

Amateur radio operators are on alert for any emergency, local or world-wide, and practice their communications skills during the American Radio Relay League's "Field Day" exercise, which this year will take place the weekend of June 28-29, 1997.

It is fitting to give recognition to the far-reaching technological achievements of amateurs and this important emergency preparedness exercise, and call upon all citizens to pay tribute to the amateur radio operators of the Empire State.

NOW, THEREFORE, I, George E. Pataki, Governor of the State of New York, hereby recognize June 1997 as:

AMATEUR RADIO MONTH in the Empire State.

Signed: George E. Pataki, Governor

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CUTTING EDGE TECHNOLOGY

■ **PointCast, the company started by two ham operators, Chris KD6KWC and Greg KD6KWB Hassett** of Silicon Valley, CA is set to go public. Our guess is that will happen in the next three months. (See W5YI Report, Feb. 15, 1997, p. 10)

PointCasting automatically sends or "pushes" wanted Internet content to you instead of manually "pulling" in information using a browser. The big advantage is that it totally eliminates frustrating searches and waiting for information downloads.

You simply leave your computer on and PointCast goes into the Internet at predetermined times (I have mine set for 4 a.m.) and gathers personalized information from preselected sites such as CNN, Time and Wired magazines ...and major newspapers like the New York Times and the Wall Street Journal.

Thus, I have my own personalized "newspaper" waiting for me when I get up in the morning. It can even work in the background while you are using your PC for something else. Advertising on the PointCast network is their prime source of income. You can get their software free from the Internet.

Chris Hassett, 34, wouldn't confirm that his company is going public, but he did say that they were looking for a new CEO to take over day to day management. Chris would stay on as Chairman.

Formed in 1992, PointCast has gone from 50 to almost 270 employees in the past two years. They claim to have about 1 million regular users. The same headhunter who recruited Jim Barksdale to Netscape is looking to find the new CEO.

PointCast, the best known proponent of "push" technology company, now has a lot of competition. Both Netscape and Microsoft are building push technology into their new browser releases. And many companies are popping up that "push" information to users in one way or another.

■ **The Personal Area Network (PAN), a computer device that fits in your pocket, transmits data through the human body!** The electric current is 1,000 times weaker than the electricity caused by running a comb through your hair. It allows two PAN holders to trade programmed information such as business cards through a handshake. The technol-

ogy was developed at the MIT and is now being perfected by IBM. The possible applications are mind boggling. PAN could eliminate calling cards at pay phones, entering codes at ATM machines, replace plastic credit cards ...health care workers could even retrieve a person's medical history simply by touching the person.

■ **"Web Intelligent Agents" are software routines that wait in the background to perform an action when a specified event takes place.** "Agents" work automatically and move from site to site on the web, unsupervised by their users. These electronic butlers can be "trained" to search and retrieve material, thus automating the tiresome process of plowing through tons of data.

■ **One of the problems with satellite TV reception on moving vehicles (such as vans and recreational vehicles) is that the antenna does not always point at the satellite.** Datron Systems (Simi Valley, CA) has developed a special RV satellite tracking system that remains locked onto a digital satellite.

■ **Game machines coming to your PC! Intel is preparing an assault on the \$15 billion home video-game market.** They have released a hardware specification that allows software routines such as those used in coin-operated arcade games to run on multimedia PCs. The common standard will allow software developers to write games for Wintel machines rather than for proprietary platforms such as those used by Nintendo or Sega. Microsoft and Sony are supporting the new standard.

■ **The National Automated Highway System Consortium (NAHSC) is busily working on a system of wired pavements and computer-controlled cars.** Once completed, contingents of 10 or 20 cars will glide along at up to 90 mph in automated lanes once the car's destination has been programmed. The onboard computer will read magnetic sensors in the road and detect the movement of nearby cars. Upon arrival, the driver will assume control of the car.

Congress, which has provided \$200 million in R&D funding, has mandated that the consortium come up with a viable plan for driverless cars and safe, automated highways by the year 2002.

In early August, the NAHSC will open a 7.6 mile stretch of automated highway along interstate 15 in San Diego. By eliminating human error, the new system

will reduce accidents by 50% to 80% and could also double or triple the number of cars carried on a single lane of traffic.

■ **FEDEX wants to change its paper and voice based transactions to the Internet.** Over 400,000 customers are online with FedEx today and electronic bookings generate 60 percent of the company's over two million daily transactions. FedEx customers can track and trace shipments from their own website and need not visit FedEx on the web.

HARDWARE & SOFTWARE

■ **Computers that talk and listen!** Microsoft, IBM and others have software that can recognize and read speech from the Web ...and turn speech into text ...even enlarged text. Speech recognition software, which permits Internet access to the visually and hearing impaired, may soon be embedded in operating systems..

■ **Microsoft is now the third-largest company in the United States** as measured by the value of its publicly held stock. According to the *Bloomberg Financial News*, Microsoft is now ahead of Exxon with a market capitalization of more than \$151 billion. Only General Electric (\$199 billion) and Coca-Cola (\$170 billion) are larger.

CEO Bill Gates sold off some \$289 million in Microsoft stock last month, but it is only a drop in a bucket (less than 1%) compared to his total holdings. His net worth is more than \$33 billion.

■ **Laser printers keep getting faster and the day may come when your office copier is obsolete.** PC Magazine reports that the latest crop of 12-to-40 page-per-minute laser printers let them serve as an office copier, mailbox, collator, stapler and even a scanner and fax machine. They found 22 printers from 12 manufacturers that fell into four categories: 12 ppm, 16-20 ppm, 24 ppm and 40 ppm. (Cost: \$1,500 - \$25,000.)

■ **The electronic writing market is beginning to emerge!** The Cross pen company has introduced an electronic pen and writing pad that plugs into a Windows 95 enabled PC.

Users will be able to write on word processing documents, faxes and other digital documents. The \$149 powered pen and pad set can also serve as a mouse.

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- **Hewlett-Packard has acquired VeriFone in an attempt to jump start electronic commerce on the Web.** VeriFone is a leader in technology for sending funds across the Internet. They have software that allows people in their homes and offices to download electronic cash from their bank accounts via telephone lines to "smart cards." They also have products which keep credit card numbers secure on the Internet. VeriFone is the leading maker of small card readers used by retailers to verify credit cards.
- **Solar-powered satellite phones are being tested to provide communications for remote Australian communities.** Roughly 85% of Australia's 17.5 million population live in cities. The remainder of the population, spread out over 80 percent of the continent, have less than one telephone every 50 miles. The satellite calls are passed back down to Australian earth stations and tied into the landline telephone network.
- **Sony has developed a 12-GB optical drive that is seen as a VCR replacement.** A small (12 centimeter) disk can store about 5.5 hours of DVD-quality video and audio or more than 80 minutes of HDTV-quality video.
- **High-capacity floppies are on the way!** The LS-120 3.5-inch 120-Mbyte floppy drive (O.R. Technology, Campbell, CA) is seen as a replacement to the 1.44-Mbyte floppy. Compaq is already installing the drive in some of its computers. Another contender for the floppy replacement is the 3.5-inch 100-Mbyte "Zip" drive. (Iomega Corp. (Roy, UT).
- **LSI Logic (Milpitas, CA) has developed a single chip that permits digital still camera makers to lower prices to the \$300 to \$500 range.** The single-biggest challenge to digital camera makers is keeping costs down. Most people cannot distinguish a picture shot by a high resolution (1 million pixel) digital camera from that of a wet-film camera.
- **Nikon has unveiled a new (and inexpensive - \$399) "Coolpix" digital camera.** Users can take a picture and then attach the camera directly to the PC/MCIA slot on a laptop to view (and save) the photo as a JPEG image. It provides an easy way to send pictures across the Internet.
- **RFLink's "Waveform" system plugs into a single DVD drive on a PC or a stand-alone unit and then broadcasts**

the images to every TV in the house.

DVD, which stands for Digital Video Disc (or Digital Versatile Disc) is the next generation of optical disc storage technology. It's essentially a bigger, faster CD that can hold video as well as audio and computer data. DVD aims to encompass home entertainment, computers, and business information with a single digital format, eventually replacing audio CD, videotape (VCRs), laserdisc, CD-ROM, and perhaps even video game cartridges..

- **High tech Pizza! A company in Atlanta with the weird name of "Stupid PC" offers a loaded PC (75 MHz CPU, 14-inch monitor, 1.6 GByte hard drive, 16 MB of RAM, etc.) which it delivers and installs ...complete with 3 months of Internet access for \$800. (A not so stupid business idea!)**

- **Slow but sure, cable modems which permit high-speed Internet access to cable TV sets are being rolled out.** LANcity, Zenith and Motorola models are the most popular. Cable modems connect to the Internet via a standard 75-ohm coaxial cable. While the fastest cable modems claim to permit 10 Megabit/second network access, in reality, the shared speed is more like 1.5 Mbs. Still, this is more than 50 times faster than 28.8 Kbs modems.

- **The hottest PC maker right now is Dell Computer** headed up by 32-year-old CEO, Michael Dell. Their sales to businesses and individuals has increased nearly 70% compared to a year ago. And its stock has more than tripled during the prior year. Like Gateway 2000, Dell sells its computers over the telephone ...and over the Internet. The firm was No. 8 in worldwide PC sales in 1994. It is now No. 5. It could be No. 3 by year end. (No. 1 is Compaq, No. 2: IBM.)

- **Get ready for Super Phones that work like PDAs (personal digital assistants) connected to the Web.** These new smart phones have a small keyboard and screen ...and a browser that can retrieve information from Web servers, get e-mail, check stock quotes, track packages, look up names and phone numbers, make airline reservations and fax. Several big companies either have them ..or are working on them (including AT&T, Philips Electronics, Northern Telecom, Nokia and Motorola.) Cost ranges from \$299 to \$499.

- **A Reuter's story out of Milan, Italy says that according to a study,**

over half of all software in Italy is pirated. The European average percentage of illegal programs installed in personal computers last year was 43%. The study said that on a global basis, nearly half of software applications used around the world last year were pirated, representing a loss of more than \$11 billion for software companies.

INTERNET ROUNDUP

- **An Idaho Indian tribe has launched an online lottery and gambling center, the first such site within the boundaries of the United States.** The Coeur D-Alene tribe is launching the National Indian Lottery which they call "USLottery." It is just now getting underway and some portions are still "under construction." (<http://www.uslottery.com>)

Besides a \$1 million lottery, they will also offer "scratch off" games, bingo and video poker. The site is being built and run by a professional organization and so far, looks very well done. The tribe claims that they can bypass U.S. gambling laws because like offshore sites, the lottery exists on "...sovereign Indian territory and their gambling site is authorized by the Indian Gaming Regulation Act (IGRA) of 1988." The state of Missouri is not convinced of its legality and has already filed suit against the tribe.

The Coeur D-Alene Indians bring in about \$8 million a year from their reservation casino. It expects USLottery will be played by 200,000 people by year end and deliver some \$200 million annually. To avoid trouble, only residents of 36 states where gambling is legal are being allowed to play USLottery.

The gambling site does not officially open until fall, but it is up and running while being constructed. You can now expect to see a widespread proliferation of online gambling from Indian reservations.

- **E-Mail Lottery is a free (advertiser supported) lottery.** Lottery tickets are e-mailed to registered players and winning numbers are posted to their website at <http://www.emailotto.com>. Players get about five lottery tickets a week. The lottery is run by an Arkansas attorney, Gregory W. Harris of Little Rock. "Our gaming operations are legal because our players are not required to pay any fee or make any purchase in order to participate." Cash prizes of \$100 to \$1 million are possible.

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■ **A New York State sanctioned company, Capital District Regional Off Track Betting is the first to offer online off-track horse race betting on the Web.** Capital OTB (Schenectady, NY) has found a way to circumvent the Interstate Wire Act which prohibits the use of phone lines to place bets in other states.

It seems that the Horse Racing Act of 1978 is providing a loophole by making interstate simulcasting and off track betting on horse racing legal. There is no prohibition preventing races from being simulcasted to individual PCs. They offer both thoroughbred and harness racing off track betting directly to your PC from several different tracks around the country.

Capital OTB will accept online bets except from states where off track betting is legal. They even have an online virtual tote board which is updated every 30 seconds. (<http://www.capitalotb.com>)

■ **Web book seller, Amazon.com went public on May 15th.** Shares of the Seattle-based company began selling at \$18.00 and quickly zoomed to \$30.00 before leveling off at \$23.50. Amazon Com, Inc. raised \$54 million on the sales of 3 million shares at \$18.00. The 2-year old bookseller offers 2.5 million titles - very few of which are carried in their own inventory. It is a very popular site, nearly 100,000 Netizens visit the site every day. Amazon.com has yet to make any profits and lost \$3 million on \$16 million in revenues for its first quarter ended March 31. At presstime, AMZN shares were selling at \$17 ...below their initial offering price.

■ **A Delaware teenager supposedly hacked his way into NASA's Internet site** at the Marshall Space Flight Center in Huntsville, AL. He left a message sympathetic to Kevin Mitnick who was indicted last year on charges stemming from a multimillion-dollar crime wave in cyberspace.

Another hacker, Carlos Salgado, 36, (Daly City, CA) was arrested last month for trying to sell more than 100,000 names and credit card numbers to an undercover FBI agent. A San Diego Internet provider discovered that an outsider had broken into the insecure system widely used by businesses to sell products over the Internet and installed "packet sniffer" software.

A trap was set up by the FBI to purchase the credit card numbers and two purchases were actually made. Salgado was finally arrested when he agreed to turn over a third batch of 100,000 credit

card numbers for \$260,000.

He was arraigned in federal court in San Francisco for unlawfully intruding into a computer network database for the purpose of theft and selling confidential credit card information taken from the Internet. Salgado faces a maximum of 15 years in federal prison and a fine of up to \$250,000 on each count.

■ **Apparently America Online's problems of network access glitches, e-mail system failures and class-action suits are behind it.** AOL shares are now trading \$15 higher than when they traded during the height of the difficulties. And security analysts are now giving AOL a "strong buy" recommendation.

The online network has upgraded their system and another 100,000 modems have been added so that 360,000 simultaneous users can access AOL. Additional capacity is being leased from various telecommunications companies. AOL can now handle 13 million e-mails per day ...more than twice as many as before the upgrade. The online service has also now "rebooted" their sales promotion plans. They stopped advertising during the network overload problem.

■ **Tougher Internet access laws in China. Internet access providers in China now must be licensed by the government.** They also have to provide information on the nature and scope of their networks and addresses of their computer hosts. The previous rules required Internet users to register with the police and promise not to harm the country or commit crimes.

■ **Broadcasters are getting ready for the convergence of TVs and PCs.** Microsoft has teamed with NBC and its acquisition of WebTV is a step in that direction. Microsoft's next operating system (now code-named "Memphis") will include features for integrating TV-watching with computer operations. Microsoft envisions that TV viewing will be a fully interactive experience allowing viewers to get more information about a show, play games linked to a program or download special sound or video files.

Joining Microsoft with a PC/TV is Toshiba, ViewCall, Compaq and Thomson. Sony and Phillips make WebTV and Zenith and Samsung Electronics are making Internet-ready TVs. Cost is \$3,000 for PC/TVs ...\$300 for WebTV..

■ According to Forrester Research, (Cambridge, MA) **WebTV last year**

shipped 65,000 set-top boxes and should ship 228,000 this year. "It will take three years for the industry to develop hardware and content that can deliver what consumers really want -- interactivity that enhances their television experience. The hardware required to deliver more interactive features won't be developed until 2000. But once it happens, 14.7 million households will connect televisions to the Internet by 2002, and 9.2 million will have Internet access through telephones with monitors."

■ **Universal personalized e-mail is here!** Life-long, never changing electronic mail addresses can be had from MailCity (<http://www.mailcity.com>) and I-Name (<http://four111.iname.com>) Other e-mail name services include HotMail, RocketMail and NetAddress. Basically, they relate your actual e-mail address (which could change) to a personalized one that won't. Both MailCity and I-Name offer FREE domain names. I-Name has several you can choose from ...such as "earthling.com". (Your ham call sign could be the user name, or W5YI@earthling.com.)

■ **AT&T's WorldNet is now the nation's No. 1 pure-dial ISP (Internet Service Provider)** that is not an online programming provider. Netcom has 600,000 subscribers, AT&T WorldNet: 850,000. After getting off to a rocky start, AT&T now seems to have its act together.

WASHINGTON WHISPERS

■ **The "Next Generation Internet" is running into funding problems!** The project was announced with great fanfare during last year's presidential campaign. Pres. Clinton wants Congress to spend \$100 million annually for five years to build a super high speed government research network that can send data at 1,000 times the speed of today's Net.

Another separate project called "Internet2" is being promoted and funded by 100 research universities to speed up school connections. Internet2, which will eventually cost \$300 million over five years to build, is designed to connect campuses at speed up to 600 million bits per second. At that rate, a 30-volume encyclopedia could be transmitted in less than a second.

The goals of the two programs are very similar and Congress does not believe that both programs are necessary.

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■ **President Clinton said his administration is working on an Internet "filter" for parents and educators** to filter the Internet and shield children and others from undesirable content. He mentioned pornography and "...building bombs."

Clinton is basically computer illiterate, but Vice President Al Gore is said to a "...techno-junkie and an Internet expert." Once daughter Chelsea goes to Stamford University, however, the Clinton's are expected to send e-mail messages to her.

■ **Clinton also said his budget proposed enough money in each of five years to ensure every school gets connected to the Internet.** "The principal beneficiaries should be the rural schools and poor innercity schools," he said.

An FCC proposal would make it possible for the poorer schools, remote rural schools and libraries to be hooked up to the Internet at up to a discount of up to 90% to make access affordable.

A 1995-1996 school year (67-page) study, *"Computers and Classrooms: The status of Technology in U.S. Schools"* found that wealthier schools had, on average, 1 multimedia computer for every 22 students. In schools with large numbers of poor students, the ratio was 1 multimedia computer for every 32 students. The U.S. Dept. of Education is recommending a ratio of 1 to 5.

The report found that only about half of schools in poor areas have Internet access, compared with about three quarters of schools in wealthier communities..

■ The May 26th issue of *Electronic Engineering Times* says that **"The government's sale of broadcast and other spectrum at auction is expected to generate \$32.3 billion over 10 years,"** according to the final details of the balanced budget deal worked between Congress and the Administration.

"The estimate was based on selling 78 MHz of spectrum allocated to analog broadcasting, auctioning 36 MHz currently allocated for TV Channels 60-69, auctioning 'vanity' toll-free numbers, and broadening FCC auction authority to sell non-broadcast spectrum and extending its auction authority beyond 1998."

■ **Congress is now joining the anti-Spam war.** Rep. Chris Smith (R-New Jersey) has introduced the *"Netizens Protection Act of 1997."* If voted into law, the Act would carry restrictions similar to a 1991 ban on junk faxes, called the *Telephone Consumer Protection Act*. Users

could still receive unsolicited e-mail if they so desired.

Another bill authored by Sen. Frank Murkowski (R-Alaska) called the *"Unsolicited Commercial E-mail Choice Act of 1997"* provides for big fines to Internet providers if they allow spam electronic mail to reach customers. He said, "I fail to see why any American should bear any costs for receiving something they did not ask for."

His bill requires senders of unsolicited e-mails to include "Advertisement" as the first word of the subject line. Internet users could request that their ISP filter out all such e-mails. Offshore marketers sending spam e-mails from outside the country would also be subject to the law "...if the initiator of the message has a meaningful presence in the United States such as an office, parent company, [or] bank to deposit funds..."

■ **The industry's most notorious spammer, Cyber Promotions says his company's goal is to legitimize the bulk e-mail industry.** The firm sends out 4 million e-mail advertisements each day."

The main way junk e-mailers get addresses is from postings to the thousands of Internet "Usenet" and e-mail listserv discussion groups. Spammers search the archives to get e-mail addresses for their lists.

One way to protect yourself is to use an altered return e-mail address to identify yourself. Then put a note beside the address saying to remove the extra characters before replying. Computers that automatically grab e-mail addresses for junk e-mail can not remove these characters.

■ **Congressman Tim Roemer (D-Indiana) has begun a new drive to kill the International Space Station.** "It is bad science, bad fiscal policy. It's foreign policy running our domestic considerations," Roemer said, flanked by other members of Congress and scientists who oppose the station. "Let's get the station canceled... Including operating costs, the station's cost to the United States will be \$94 billion over its projected 10-year life," Roemer said in announcing introduction of a bill to cut off funds, thereby killing the project. The bill listed 31 co-sponsors.

■ **Great Britain is changing the way it charges for commercial radio licenses.** Taking a hint from the more than \$20 billion that the U.S. has raised

from selling radio spectrum to industry: "In the future, license fees will reflect more closely the value of the spectrum instead of being linked to the costs of spectrum management."

According to a DTI (Dept. of Trade and Industry) press release, the *Wireless Telegraphy Bill* provides for "...administrative spectrum pricing, where license fees are set by regulation ...and spectrum auctions on a selective basis."

The administrative spectrum fees will be based upon the contribution to business income that the radio license is believed to provide. For example, each taxicab will be assessed about 30¢ per week and cellular phone companies 25¢ per subscriber per week. Businesses will be permitted to pass on the fee to the customer.

"Up to 80 percent of users will see no increases or may benefit from sizeable fee reductions of up to 50 percent." The new fees will not affect amateur or CB radio in the United Kingdom. (Thanks: G4FAI)

AMATEUR RADIO

■ **Buckmaster is now selling advertising banners** on its amateur radio call sign look up site (http://www.buck.com/cgi-bin/do_hamcall) Each of 100 slots is \$30 per month. They are currently getting over 2,000 hits/day on their call sign server. (Tel. 540/894-5777).

■ **Gordon West, WB6NOA (Costa Mesa, CA) has a new "NOA's ARC."** West's new Amateur Radio communications vehicle is built around a Chevrolet 22' G30, 1-ton, extended van chassis with a 7.4 liter 454 CID EFI V8 gas engine. A 4.5 KW generator is installed beneath the rear radio operating area to provide plenty of power for all amateur radio equipment onboard.

Every manufacturer of amateur radio equipment is represented. There are three operating positions inside the vehicle - the front for HF, mid-section for VHF/UHF and the rear area carries satellite and data equipment.

"We have 160 meters through 10 GHz, and every manufacturer has at least one operating unit," comments West. "This will allow students to enjoy 'hands on' exposure to every radio brand sold through dealers or direct. The vehicle will also serve as an emergency communications vehicle for our local Red Cross chapter, plus emergency communications to the city of Costa Mesa," adds West.

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FCC adopts new rules regarding commercial UNLICENSED SPREAD SPECTRUM TRANSMITTERS

The FCC has amended Parts 2 and 15 of its rules regarding the operation of unlicensed low power spread spectrum transmission systems in the 902-928 MHz (33-cm), 2400-2483.5 MHz (13-cm) and 5725-5850 MHz (5-cm) bands. These so-called ISM (industrial, scientific and medical equipment) bands are also shared with the Amateur Service.

The Commission permits devices using spread spectrum technology to transmit with up to one watt of power in the ISM bands. These new rules do not impact amateur (Part 97) spread spectrum use.

Specifically, the Commission adopted new Part 15 rules concerning the limit on directional gain antennas for spread spectrum transmitters operating in the 2450 MHz and the 5800 MHz bands. It also adopted a number of amendments to the spread spectrum regulations to clarify the existing regulations, to incorporate existing policies into the rules, to strengthen the prohibition against the use of external power amplifiers and antennas and to update the current definitions.

The FCC said "These changes to the rules will facilitate the growth of the spread spectrum industry by enabling and encouraging practical applications for these products. The new rules will expand the ability of equipment manufacturers to develop spread spectrum systems for unlicensed use."

Part 15 of the regulations permits the operation of low power radio frequency (RF) devices on a secondary basis without a license from the Commission or the need for frequency coordination. The technical standards for Part 15 transmission systems are designed to ensure that there is a low probability that these devices will cause harmful interference to other authorized users of the spectrum. Indeed, the primary operating conditions under Part 15 are that the operator must accept whatever interference is received and must correct whatever interference is caused.

Spread spectrum communications systems use special modulation techniques that spread the energy of the signal being transmitted over a very wide bandwidth. This spreading reduces the power density of the signal at any frequency within the transmitted bandwidth, thereby reducing the probability of causing interference to other signals occupying the same spectrum.

The spreading technique used in the transmitter is reversed in the receiver to enable detection and decoding of the signal. This reversal of the signal spreading process enables the suppression of strong undesired signals in the receiver. Spread spectrum systems are thus able to tolerate strong non-spread signals with a reduced likelihood of receiving harmful interference.

Action by the Commission, OET Docket 96-8, by Report and Order.

Food for thought...

WIRELESS SMART SOFTWARE RADIOS

A thought-provoking article on spectrum use appears in the June 2nd edition of "Forbes ASAP" magazine. It talks about how entrepreneurs encounter a perpetual shortage of frequencies when they wish to implement new radio services.

Yet, 71-year old engineer Paul Baran says that "...when you tune a spectrum analyzer across a band of UHF frequencies, you discover that much of the radio band is empty... This unused spectrum might be available for transmission if we could take measurements and know exactly when and where to send the signal."

He believes "...the frequency shortage is caused by thinking solely in terms of dumb transmitters and dumb receivers. With today's smart electronics, even occupied frequencies could potentially be used. The chief reason for the apparent shortage of spectrum," he concludes "is regulation of it."

"The heart of the problem is the concept of spectrum as public property -- as scarce real estate or a precious natural resource. Spectrum is nothing of the kind. ...The real estate model applies chiefly to [those] using analog modulation schemes in which all interference shows up in the signal."

"...new digital systems can divide and subdivide the spectrum space into cells and differentiate [stations] by spread spectrum codes... Any transmission capacity not used is wasted forever, like water over a dam. The existing spectrum can be more efficiently used by resorting to smart receivers and transmitters."

"In general, the companies on the path to broadband digital radios -- the smart radio -- will prevail over companies that hook their futures to hardwired machines linked to narrow spans of frequencies."

"In the old world of dumb radios, transceivers join ...components into one analog hardware system. In the new world of smart radios, only the antenna and the front-end mixer are analog and hardwired. Channels, frequency bands, modulation schemes, and protocols all can be defined in software in real time. The radio becomes a programmable microwave eye -- a device that can see whatever colors of RF you want to send it."

"As [smart broadband digital or software] radios are computerized, they will be able to 'see' the radio spectrum as your eyes see the roads. Smart radios will be licensed to drive in open spaces in the air as long as they don't collide with other radios, overpower them or pollute the airwaves. No longer caught in a dedicated set of channels, time slots, protocols, data types, and access standards, radios will be smart and agile, rather than dumb and fixed frequency."

"Spectrum is chiefly a product of inventors and entrepreneurs. Americans will regret the day when [they] began auctioning and taxing, marshaling and mandating [its] use."

(Digested from an 8 page article, Forbes ASAP, p.107-120.)